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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/696,013	10/26/2000	Hiroshi Yoshida	P107400-00016	2916

7590

05/19/2003

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EXAMINER

KOSLOW, CAROL M

ART UNIT

PAPER NUMBER

1755

DATE MAILED: 05/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/696,013

Applicant(s)

YOSHIDA ET AL.

Examiner

C. Melissa Koslow

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 6-10 and 13-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-10 and 13-17 is/are rejected.
- 7) ☒ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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This action is in response to applicants' amendment of 5 May 2003. The 35 USC 112, second paragraph rejection over claims 8 and 9 are withdrawn due to the amendment to the claims. Applicant's arguments have been fully considered but they are not persuasive.

Claims 7 and 14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

There is no teaching in the specification to enable one of ordinary skill in the art determine the necessary amounts and composition of the dopant from groups (1)-(3) in order to produce compound having a predetermined ferromagnetic transition temperature. There is no taught relationship between the amounts and composition of the dopant to the ferromagnetic transition temperature. While the specification generically teaches the dopants in an amount in the range of 1-99 at% will adjust the ferromagnetic transition temperature, there is no indication how one can determine the necessary amounts and composition of the dopant from groups (1)-(3) from those claimed when given a specific ferromagnetic transition temperature without undue experimentation.

Applicants' arguments have been considered but they are not convincing. While the specification is enabling for the general processes of claims 6, 8-13 and 15-17, it is not enabling for the specific process of claims 7 and 14 where the ferromagnetic transition temperature is determined and then the amount and composition of dopant is chosen in order to produce the compound having this predetermined ferromagnetic transition temperature. Figures 3 and 4 do not provide sufficient detail in order for one of ordinary skill in the art to determine the

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relationship between the amount of V, Ni, Cr, Co, Fe, Fe and Co and Fe and Mn and the ferromagnetic transition temperature. The rejection is maintained.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Hager, Dausch or Miyazaki et al.

These references teach producing doped ZnO by adding a dopant to ZnO, or in other words controlling the amount of the dopant added to ZnO. Hager teaches doping ZnO with Rh or Ru, Dausch teach doping ZnO with Fe, Co or Ni and Miyazaki et al teach doping ZnO with at least one of Cr, B and Ga. B and Ga are known n-type dopants. Thus these references teach adding elements which fall within claimed groups (1) and (3) to ZnO. Applicants teach on page 9, lines 5-14 and page 6, lines 9-15 that the addition of the taught dopants will inherently adjust the ferromagnetic characteristics of ZnO. Thus the taught method of adding the dopant in the taught amounts will inherently adjust the ferromagnetic characteristics. The references teach the claimed method.

Claims 6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Pfrommer et al.

This reference teaches producing doped ZnO by crystal mixing Fe and Mn. Thus this reference teaches crystal mixing elements which fall within claimed group (2) to ZnO. Applicants teach on page 9, lines 5-14 that the addition of the taught dopants will inherently adjust the ferromagnetic characteristics of ZnO, such decreasing the entire energy by kinetic energy, controlling the magnetic interaction between the metallic atoms and controlling the light

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transmitting characteristics. Thus the taught method of adding the dopant in the taught amounts will inherently adjust the claimed ferromagnetic characteristics. The references teach the claimed method.

Claims 13 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyazaki et al.

Miyazaki et al teach doping a single crystalline ZnO with at least one of Ti, Cr, B and Ga. Therefore, the reference teaches adding dopants, or in other words controlling the amount of the dopant added to ZnO, where the dopants fall within claimed groups (1)-(3). Applicants teach on page 9, lines 5-14 and page 6, lines 9-15 that the addition of the taught dopants will inherently adjust the ferromagnetic characteristics of ZnO. Thus the taught method of adding the dopant in the taught amounts will inherently adjust the ferromagnetic characteristics. The reference teaches the claimed method.

Applicants' arguments with respect to the above rejections have been considered, but are not convincing. The claimed method of adjusting ferromagnetic properties is an inherent result of the processes of the references. The claimed step of "controlling the amount" encompasses the step of adding the dopant, which is taught by the references. The fact applicants have discovered a new property associated with the known process of controlling the amount of the taught dopants does not mean the process is novel since this property is inherent in the step of performing the process. The rejections are maintained.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

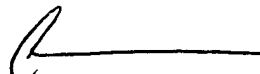
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (703) 308-3817. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell, can be reached at (703) 308-3823.

The fax number for Amendments filed under 37 CFR 1.116 or After Final communications is (703) 872-9311. The fax number for all other official communications is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661 or (703) 308-0662.

cmk  
May 16, 2003



C. Melissa Koslow  
Primary Examiner  
Tech. Center 1700